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Military History and Fourth Generation Warfare

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ABSTRACT This article examines ‘Fourth Generation Warfare’ (4GW), a theory of how warfare has evolved and is evolving, from the perspective of military history. The author makes three primary claims: 4GW advocates’ boxing of history into ‘generations’ is logically and temporally inconsistent; 4GW authors misuse history by selectively choosing case studies and applying them out of context; and other arguments regarding the current and future character of warfare are more convincing. The author concludes that scholars and policy-makers would be well served by considering elements of 4GW, particularly its analysis of insurgency, but that the concept should be subsumed by a broader US grand strategy that retains a strong focus on preparation for conventional warfare.

KEY WORDS: Fourth Generation Warfare, Network-Centric Warfare, Insurgency

The theory of ‘Fourth Generation Warfare’ (4GW), first developed in the late 1980s, recently has gained traction in the face of insurgency warfare against the United States in Iraq and Afghanistan. 4GW is one of a few serious views of the future of warfare, and its proponents ardently press for US military adaptation to better cope with the threat. The stakes of victory in Iraq and Afghanistan are high, of course, but 4GW authors fail to examine the broader context of how warfare is changing and how the United States might affect those changes in its favor. To focus on the purported 4GW threat, which is in essence information technology-enabled insurgency, neglects the full range of military capabilities the United States must develop to sustain and strengthen its place in the world.

A first step in placing 4GW in the broader context of the future of warfare is to examine how well the theory is grounded in the past. An assessment of 4GW from the perspective of military history shows that the theorists’ concept of ‘generations’ of warfare is logically and temporally unsound, a review of 4GW advocates’ case studies shows that they are used selectively and out of context, and a handful of

additional case studies – guerrilla warfare against Rome, the American Revolution, the Peninsular War, and the Philippine Insurrection – suggest that 4GW is not the new phenomenon its supporters claim. Taking these three pillars of criticism together, visions of future warfare beyond super-insurgency are far more convincing than 4GW, including the potentials for information technology to alter how militaries fight, interstate war, and other types of low-intensity conflict.

The 4GW Theory

William Lind coined the phrase 4GW and articulated the theory in a 1989 thought piece, ‘The Changing Face of War: Into the Fourth Generation’, co-authored with four US Marine Corps and Army officers.¹ The theory focuses on evolutions in modern warfare following changes in ‘ideas and technology’; in the authors’ view, the Peace of Westphalia (1648) was the beginning of the ‘modern’ era of warfare because it codified states’ monopoly on violence. The first generation of modern war was the French Revolution’s levee en masse (conscription), an evolution to the tactics of line and column made possible by soldiers’ nationalistic motivation for fighting. The second generation was massed firepower, which followed the technological and organizational shifts of the Industrial Revolution. The third generation was war of maneuver in World War II, best exemplified by the Germans’ radical new tactics in combined arms and downward delegation of decision-making authority.

Then came the fourth generation, say the theory’s proponents, in which decentralization and initiative carry over from the third generation, but war changes in that states lose their monopoly on violence and are forced to fight non-state opponents.² In the 4GW literature, there are some theoretical discrepancies among authors. For instance, Lind argues that transnational, networked 4GW actors need not be limited to insurgency. Lind believes insurgents are Hammes’ primary 4GW enemy as identified in *The Sling and the Stone*, the first book dedicated to 4GW theory.³ Lind places heavier emphasis on the

¹William S. Lind, Keith Nightengale, John F. Schmitt, Joseph W. Sutton, and Gary I. Wilson, ‘The Changing Face of War: Into the Fourth Generation’, *Marine Corps Gazette* (Oct. 1989), 22–6.

²William S. Lind, ‘Understanding Fourth Generation War’, *Military Review* 84/5 (Sept./Oct. 2004), 14.

³Col. Thomas X. Hammes USMC, *The Sling and the Stone: On War in the 21st Century* (St Paul, MN: Zenith Press 2004). See Lind’s book review of *The Sling and the Stone*, published on the Defense and the National Interest website: ‘[Hammes] makes a major error early, in that he equates Fourth Generation War with insurgency.’ William

relevance of culture, and he importantly claims that 4GW is not new, but ‘a return – specifically a return to the way war worked before the rise of the state’.⁴ Hammes, on the other hand, attributes the creation of 4GW to Mao Zedong (Mao Tse-tung).

The authors agree more than disagree, however, and several principles underlie Lind and Hammes’ works and those of other 4GW theorists, as is evident in their definitions:

In Fourth Generation war, the state loses its monopoly on war. All over the world, state militaries find themselves fighting nonstate opponents such as al-Qaeda, Hamas, Hezbollah, and the Revolutionary Armed Forces of Colombia. Almost everywhere, the state is losing. Fourth Generation war is also marked by a return to a world of cultures, not merely states, in conflict... Nor is Fourth Generation war merely something we import, as we did on 9/11. At its core lies a universal crisis of legitimacy of the state, and that crisis means many countries will evolve Fourth Generation war on their soil...⁵ (William Lind)

4GW uses all available networks – political, economic, social and military – to convince the enemy’s political decision-makers that their strategic goals are either unachievable or too costly for the perceived benefit. It is rooted in the fundamental precept that superior political will, when properly employed, can defeat greater economic and military power. 4GW does not attempt to win by defeating the enemy’s military forces. Instead, combining guerrilla tactics or civil disobedience with the soft networks of social, cultural and economic ties, disinformation campaigns and innovative political activity, it directly attacks the enemy’s political will.⁶ (Thomas Hammes)

Foremost among Lind’s and Hammes’ agreements – which form the core of 4GW theory – are that modern warfare has evolved in the four aforementioned generational transitions, the power of the state is declining, conventional war is decreasing in importance and likelihood, the number of violent non-state actors is rising, media manipulation

S. Lind, ‘The Sling and the Stone’, Free Congress Foundation Paper *On War* #90 (Nov. 2004). Lind’s ire is well-directed: in a PowerPoint briefing dated Nov. 2004, Hammes’ title reads, ‘Fourth Generation War: Insurgency on Steroids’.

⁴Lind, ‘Understanding Fourth Generation War’, 16.

⁵Lind, ‘Understanding Fourth Generation War’, 13–14.

⁶Thomas X. Hammes, ‘War Evolves Into the Fourth Generation’, *Contemporary Security Policy* 26/2 (Aug. 2005), 190.

and insurgency-like tactics are the primary foci of modern and future warfare, the current defense establishment has 'got it wrong' by prioritizing new technologies, and all US conflicts since Vietnam have been of the fourth generation.⁷

The Theory's Flaws

The very root of 4GW theory, the concept of four generations of modern war, makes little sense in historical and social perspectives. The 4GW authors agree on the identification of multiple 'generations' of modern war but do not define what a 'generation' of warfare is. The reader may intuit that 4GW authors believe *levee en masse*, massed firepower, maneuver, and media-enabled insurgency represent the dominant operational paradigm at a given time. The authors argue that evolution to a new generation occurs as a result of underlying social and economic change, but the mark of a new generation appears to be about how war is fought.⁸

If this is indeed what 4GW authors hope to convey, there are flaws with the generational concept.⁹ Some critics of 4GW claim that overlaps between generations disproves the 'boxing' of warfare into categories. For instance, David Sorenson writes that 'most of the twentieth-century Middle East wars had elements of both second- and

⁷Other authors and literature associated with the school include retired Lt. Col. Greg Wilcox, 'Fourth Generation Warfare and the Information Arrow', Free Congress Foundation Paper (Jul. 2005) and 'Fourth Generation Warfare: the Moral Imperative', Free Congress Foundation Paper (Oct. 2003); Ret. Col. G.I. Wilson and Ret. Col. Chester Richards, who along with Wilcox have tried to affect Pentagon policy through PowerPoint briefings rather than academic literature, as described by Elaine Grossman, 'An "OODA Loop" Writ Large: New Briefing Applies 4th Generation Warfare ideas to Iraq Conflict', *Inside the Pentagon*, 23 Dec. 2004, available electronically at <www.d-n-i.net/grossman/ooda_loop_writ.htm>. An example of these briefings is '4GW and the OODA Loop: Implications of the Iraqi Insurgency' (April 2005) delivered to the Panel on Conceptual Frontiers, 16th Annual US Army War College Strategy Conference, Carlisle, PA.

⁸In his book review of *The Sling and the Stone*, Lind claims that the shift to 4GW is not about *how* war is fought, but by *who* is fighting it. That does not explain the first three generations, however, and so this attempted quick fix does not suffice to explain the 'generations' concept.

⁹The first is a basic question regarding whether or not there can be such a thing as a dominant way of war at a given time; war is a dynamic process during which either side is constantly seeking an advantage over the other. This is, however, a broad issue that requires a more thorough analysis than may be provided here, and so this paper will criticize the generational concept within the 4GW framework.

third-generation warfare, so which are they?’¹⁰ Antulio Echevarria uses tougher words and claims the ‘sequences are artificial and indefensible... firepower played as much a role as maneuver in World War II and the Korean and Vietnamese conflicts’.¹¹ Though this weakness limits 4GW theory’s explanatory power – it is tough to identify which generation the world was in at any given time – the ‘generational overlaps’ critique does not suffice to disprove the concept. It is reasonable to believe that though one form of warfare may be dominant, others are still practiced by militaries unable or unwilling to transform. After all, to identify successful new concepts of operations and tactics, there must be losers during generational transitions.

The generational argument does fall short in other ways. A key problem is that the third and fourth evolutions allegedly *occurred at the same time*; this is more than a mere overlap between generations. In *The Sling and the Stone*, Hammes argues that Mao Zedong is the father of 4GW because Mao put some of the key concepts on paper for the first time (the value of Mao’s work will be examined in the next section of this paper). Hammes cites *On Guerrilla Warfare* as the first expression of 4GW, but Mao wrote the book in 1936, nearly three years before Hitler’s army invaded Poland. How, then, could the third generation – maneuver warfare – have come about *after* the first book on 4GW had been written? The argument is not simply reduced by claiming that Mao identified key tenets of 4GW and his tactics became the dominant paradigm sometime later, because several 4GW authors – including Hammes – identify the evolutions as occurring in response to fundamental social and economic changes. How could the roots of *both* generations evolve at once?

Furthermore, while Mao was carrying out his guerrilla war in China, the ‘third generation’ war in Europe was fought with some ‘fourth generation’ tactics. Some of these include directly targeting a population’s political will (e.g., terror-bombing), Soviet partisan warfare, and guerrilla war against the Nazis. The generations are, therefore, neither logically nor temporally exclusive.

Hammes addresses the concern by saying that because the Chinese Revolution ‘took place far from the European centers of power’ it was ‘therefore largely ignored... Western professional militaries completely

¹⁰David Sorenson, ‘The Mythology of Fourth-Generation Warfare: A Response to Hammes’, *Contemporary Security Policy* 26/2 (Aug. 2005), 264.

¹¹Antulio J. Echevarria, ‘The Problem With Fourth-Generation War’, US Army War College Strategic Studies Institute Opinion Editorial (Feb. 2005); Antulio J. Echevarria, *Fourth-Generation War and Other Myths* (Carlisle, PA: US Army War College Strategic Studies Institute Monograph Nov. 2005).

missed the evolution of 4GW'.¹² This is hardly a satisfying answer if the reader is to believe evolutions of warfare are determined by how societies and economies change; surely China was no more media-saturated and communications-savvy than Europe in the mid-twentieth century. Indeed, China was *less* developed than Europe, yet Hammes asserts the less developed society showcased the fourth generation of modern war while more developed societies were still fighting in the third generation.

An additional problem with the 'generational' concept is that it completely ignores the nuclear revolution.¹³ A 4GW theorist could make a reasonable claim that nuclear weapons were an outlier in the evolution of warfare because they were the result of a unique scientific discovery that was not broadly linked to changes in society. These sorts of disruptive incidents are unpredictable yet bound to happen, a 4GW theorist might say, and one can hardly write a theory for shocks to the international system. On the other hand, if one is to assess 'modern' war following the creation of the Westphalian system, it is critical to at least discuss the military transformations stemming from nuclear weapons and the development's relevance to 4GW theory. Nuclear weapons ended World War II within days, and had the atomic bomb been developed earlier and used in the European theater, would surely have brought about Germany's capitulation more rapidly. Most importantly, the powerful role of nuclear weapons in preventing systemic wars over the past half-century is so widely accepted that it is practically beyond question.¹⁴

This last comment provokes another criticism of the 'generational' concept from the perspective of military history. The first three modern 'generations' were realized in wars that changed the governance of the

¹²Hammes, *The Sling and the Stone*, 44.

¹³The index to *The Sling and the Stone* contains no references to anything 'nuclear'. In the first article describing the characteristics of 4GW, Lind, Nightengale, Schmitt, Sutton, and Wilson's 'The Changing Face of War', they use non-nuclear electromagnetic pulse as an example to suggest that 'technologically, it is possible that a very few soldiers could have the same battlefield effect as a current brigade'. An odd choice; they do not consider *nuclear* electromagnetic pulse or any other aspects of nuclear war in 4GW other than to say 'this kind of high-technology fourth generation warfare may carry in it the seeds of nuclear destruction. Its effectiveness could rapidly eliminate the ability of a nuclear-armed opponent to wage war conventionally'.

¹⁴An important exception is John Mueller's contrarian analysis, 'The Essential Irrelevance of Nuclear Weapons: Stability in the Postwar World', *International Security* 13/2 (Autumn 1998), 55–79.

international system.¹⁵ However, 4GW is about limited means used to limited ends. None of the 4GW historical cases constituted challenges to the international system. The authors repeatedly argue that the diminution of state power is a crucial characteristic of future warfare, and that 4GW will take the conflict to the home front both with violence and ideas. These attempts to change state policy may at times succeed, but none pose an existential threat to the international system. The imaginable existential threats come from interstate conflict and spillover consequences from limited use of Weapons of Mass Destruction (WMD). 4GW authors might claim that WMD is a viable tool of 4GW, but then the same could be true of any generation of warfare, or even any individual. The concept of 'super-empowered individuals' has had great resonance for fear that spoilers can try to disrupt the world as we know it.

Next, 4GW is not the logical outcome of the social change resultant from information technology, a point that will be discussed further in the conclusion of this paper. As critic Antulio Echevarria has pointed out, the US Defense Department's approach to the future, 'network-centric warfare (NCW)', is the more realistic evolution.¹⁶ NCW is a rallying point for 4GW authors: they universally insist that the Pentagon is taking the US military in the disastrously wrong direction by focusing on incorporating better information technology into high-intensity combat systems.¹⁷ Echevarria agrees that the Defense

¹⁵This paper follows Robert Gilpin's definition of 'governance' and concept of systemic change in international relations as established in *War and Change in World Politics* (Cambridge: CUP 1981).

¹⁶The US Department of Defense's (DoD's) Office of Force Transformation, prior to having been disbanded and merged into a new office subordinate to the Undersecretary of Defense for Policy, defined network-centric warfare as 'an information advantage-enabled concept of operations that generates increased combat power by networking sensors, decisionmakers, and shooters to achieve shared awareness, increased speed of command, higher tempo of operations, greater lethality, increased survivability, and a degree of self-synchronization. In essence, NCW translates information superiority into combat power by effectively linking knowledgeable entities in the battlespace.' For further reading on this concept, see OFT's booklet, 'The Implementation of Network-Centric Warfare', available on the DoD website at http://www.oft.osd.mil/library/library_files/document_387_NCW_Book_LowRes.pdf

¹⁷For example, 'In sum, 4GW is political, socially (rather than technically) networked and protracted in duration. It is the antithesis of the high-technology, short war the Pentagon is preparing to fight', in Hammes, 'War Evolves Into the Fourth Generation', 190. Lind is more acidic in criticizing the US military: 'Aviation has replaced artillery as the source of most firepower, but otherwise (and despite the USMC's formal doctrine, which is Third Generation maneuver warfare), the US military today is as French as white wine and cheese. At the USMC desert warfare training center in California, the

Department (DoD) transformation is overly reliant on technology, but that focusing on insurgency is not the right balance, a position that indicates one does not have to be an extreme technophile to believe that NCW is a logical outcome of the information revolution.¹⁸

Additionally, the mischaracterization of NCW extends to the type of conflict DoD envisions fighting, not just the evolution of means employed. Hammes states that the Pentagon's high-technology future 'envisions a single type of enemy – a state using conventional war'.¹⁹ The Bush administration and its defense leadership, however, maintained an extremely strong focus on non-state threats, and the most recent Quadrennial Defense Review reinforces the need to prepare to fight both conventional adversaries and those who wear no uniform.²⁰ Defense Secretary Robert Gates' recent *Foreign Affairs* article, 'A Balanced Strategy', is an explicit policy statement favoring preparation across the full spectrum of potential military conflicts.²¹ The 4GW authors also fail to provide analysis explaining why the DoD network-centric concept cannot be applied to low intensity conflicts. Indeed, while it existed, the Pentagon's Office of Force Transformation specifically pointed to the utility of NCW concepts as practiced in Operation 'Enduring Freedom'.²² Separately, the defense press has noted that the US Special Operations Command is developing new information technology to meet its specific mission needs, especially in communications and reconnaissance.²³

Finally, the 4GW evolutionary concept does not take into account underlying drivers of how states perceive the future of conflict and prepare for it. A powerful argument is that the US massive superiority in high-intensity conflict, regardless of whether or not it belongs in a

only thing missing is the tricolor and a picture of General Maurice Gamelin in the headquarters', in Lind, 'Understanding Fourth Generation War', 13.

¹⁸Echevarria, 'The Problem with Fourth Generation Warfare', and 'Fourth-Generation War and Other Myths'. Also Antulio J. Echevarria, 'Deconstructing the Theory of Fourth-Generation Warfare', *Contemporary Security Policy* 26/2 (Aug. 2005), 237–9.

¹⁹Thomas X. Hammes, 'Reaction', *Contemporary Security Policy* 26/2 (Aug. 2005), 279.

²⁰The Quadrennial Defense Review, last published in Feb. 2006, may be viewed on the US DoD website at <www.defenselink.mil/qdr/>. The very first sentence in the preface establishes that the United States will be engaged in a 'long war', which refers to the military's and intelligence community's worldwide counterterrorism effort.

²¹Robert M. Gates, 'A Balanced Strategy: Reprogramming the Pentagon for a New Age', *Foreign Affairs* 88/1 (Jan./Feb. 2009), 28–40.

²²DoD Office of Force Transformation booklet, *The Implementation of Network Centric Warfare*, 29–31.

²³One useful overview is Dale G. Uhler, 'Technology: Force Multiplier for Special Operations', *Joint Forces Quarterly* 40 (1st quarter 2006), 54–9.

'third generation' box, is driving some *states* – not just the non-state actors identified by 4GW theorists – to pursue guerrilla tactics and/or WMD programs.²⁴ By this logic, the evolution to 4GW-like tactics is actually a good thing from the perspective of US grand strategy: adversaries recognize that attempting to attain force parity is futile, and so they seek strategies that may affect US policy or action in a particular locale. The trouble is if Congress and the Defense Department are swayed to primarily fund the 4GW programs identified by the examined authors, then the requisite decline in conventional military spending would signal to potential adversaries that eventual force parity with the United States is within their reach. Incorporating this element into the evolutionary concept suggests there is a need for the US military to maintain capabilities to match all types of future warfare, and it is a fallacy to claim that 4GW is emerging from the diminution of the state.

Misused Case Studies

Mao and the Chinese Civil War

The 4GW advocates use military history selectively, take case studies out of their context, and give some '4GW warriors' too much credit.²⁵ Consider the case of Mao and the Chinese Civil War. Hammes, the only author to pinpoint a 4GW start date, devotes a chapter of *The Sling and the Stone* and space in his numerous articles explaining why he believes Mao was the first proponent. For example, Hammes writes that '[Mao's] emphasis on building a firm political base among the masses of people and using that political power to slowly wear down an enemy's superior military power was an innovation of the first order. It was not the first time this approach had been used. However, it was the first time it had been clearly articulated and then disseminated as a form of warfare

²⁴For a thorough treatment of the United States' dramatic conventional military superiority, see Barry Posen, 'Command of the Commons: The Military Foundation of US Hegemony', *International Security* 28/1 (Summer 2003), 5–46.

²⁵Some of the 4GW critics in the *Contemporary Security Policy* roundtable point to Hammes' selectivity, including John Ferris, who writes, 'Hammes loots the past for pedigree while discarding anything that does not fit his needs...only a single generation can exist at a time, except when one is beating another to death...yet in reality, several generations coexist at any time, many things occur in any 'age' which do not fit the name, and the world is filled with contrary trends', in John Ferris, 'Generations at War?', *Contemporary Security Policy* 26/2 (Aug. 2005), 250.

capable of defeating much more powerful enemies',²⁶ and '... Mao is the father of a new strategic approach to war... Mao was the first to envision political power as the key to insurgency'.²⁷

Hammes' claim that Mao is the father of 4GW tactics is dubious at best. Though Mao was undoubtedly a major thinker on guerrilla warfare and influenced a large number of subsequent insurgencies, there is little basis to claim what Mao did was unique. The first reason is a common criticism of 4GW: insurgency warfare to target an adversary's political will is not a new idea. To claim that Mao deserves credit because he was the first 'to both write about and successfully execute' an insurgency is odd; 4GW authors, including Hammes, do not use the written word to identify precisely when previous 'generations' began.²⁸ For example, Napoleon, the 4GW authors' personification of the first generation, did not write a treatise on military strategy. Rather, the metric for generational transition appears to be the successful use of new concepts of operations until they come to dominate the conduct of war. Furthermore, Mao was heavily influenced by others' writing, including Clausewitz and Sun Tzu, both of whom emphasized the moral element of war.²⁹ Sun Tzu was fond of the notion that one must target an adversary's will to the point that he preferred to not have to fight at all.³⁰

Second, Mao's theory of guerrilla warfare included an ultimate conventional battle to defeat government forces, a feature quite unlike what authors today call 4GW. Hammes anticipated the challenge in *The Sling and the Stone*, but he does not have a satisfactory answer. He says that he recognizes the problem with the theory, but 'even with this caveat, Mao is the father of a new strategic approach to war. His three phases served as an outline for successful insurgencies, whether urban

²⁶Hammes, *The Sling and the Stone*, 53.

²⁷Ibid., 54.

²⁸Hammes also highlights the importance of Mao's writing in his response to the roundtable on 4GW in *Contemporary Security Policy*, 'asking why I give Mao credit for being the father of 4GW is a legitimate question. I do so simply because he was the first to write a clear, concise instruction manual that was widely distributed and followed...'. Hammes, 'Response', 281.

²⁹Trevor Dupuy, *The Military History of the Chinese Civil War* (New York: Franklin Watts 1969), 43, and Robert Asprey, *War in the Shadows: The Guerrilla in History* (New York: Morrow 1994), 255–7.

³⁰'For to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill.' Sun Tzu, *The Art of War*, trans. by Samuel B. Griffith (Oxford: OUP 1971), 77.

or rurally based'.³¹ In the face of criticism on this point,³² Hammes wrote an additional reply:

Sun Tzu wrote about insurgency and Clausewitz discussed it. Both clearly influenced Mao. But Mao was the first to identify insurgency not just as an auxiliary form of war to be used when conventional forces have been defeated or to support an advancing allied army, but as a war-winning approach in and of itself. Mao did not see guerrilla warfare as a war winner but rather as one phase of his three-phase theory of insurgent warfare.³³

This response is also unsatisfactory: by Hammes' own definition, 4GW is about using networks to wear down an adversary's will *without* engaging in force-on-force competition, so if Mao 'did not see guerrilla warfare as a war winner', then how can he be the father of 4GW?³⁴ Hammes argues that others 'modified' Mao to use irregular forces without an ultimate conventional clash, though some, such as the Vietnamese, followed the pattern. To abstract Mao's value to using a broad social network and hit-and-run attacks adds nothing new relative to other insurgencies. Mao was especially good at adapting his tactics and ideology to local circumstances, but that does not make him a father of a new breed of warfare.

Third, the context of Mao's *On Guerrilla Warfare* is highly significant, but is not discussed in *The Sling and the Stone* other than in a terse overview of the Chinese Revolution. The obvious criticism is that according to Hammes, 4GW has a 'truly transnational character', but Mao's revolution was distinctly Chinese.³⁵ At a basic level, Hammes does not ask some obvious and relevant questions: to whom did Mao address his book and what was his ambition in writing it? Mao wrote to a domestic Chinese audience regarding the Japanese presence in mainland China, but the ultimate conflict that Mao prepared for was against the Nationalist government. While engaging

³¹Hammes, *The Sling and the Stone*, 54.

³²In the roundtable, Michael Evans highlights that both Mao and Gen. Giap (in Vietnam) won their wars not with insurgency, but with conventional operations. Michael Evans, 'Elegant Irrelevance Revisited: A Critique of Fourth-Generation Warfare', *Contemporary Security Policy* 26/2 (Aug. 2005), 245.

³³Hammes, 'Response', 282.

³⁴Indeed, Hammes' own definition of 4GW says, '4GW does not attempt to win by defeating the enemy's military forces', see the block quote in the 'Theory' section of this paper.

³⁵Hammes, 'Response', 283.

the Japanese with US assistance, Mao and the Kuomintang were caching weapons for the looming domestic conflict. Thus, Hammes' first case study is more representative of a civil war that Mao fought with insurgency tactics. The political element was not different from domestic politics anywhere else: Chinese fought other Chinese for control of the state, not to erode it.

Finally, Hammes' references to China as the birthplace of 4GW are especially difficult to accept given the Chinese military's current modernization program that seeks to develop a wide range of conventional systems that 4GW authors would surely place in the 'third generation' category. *The Sling and the Stone* does not explain, or even discuss, why Chinese leaders have decided to move backward within the 4GW framework despite having been the (purported) first implementers of the latest generation.

Vietnam

It is interesting that 4GW authors label the Vietnamese insurgencies against the United States and France 'fourth generation warfare'. In the thirteenth century Vietnamese locals resisted Mongol invaders with guerrilla tactics. Led by Tran Hung Dao, the Vietnamese burned many of their own cities, left others to the Mongols (including the capital), and retreated into the mountains. The Mongols were worn down by disease and the climate and retreated. They came back in greater numbers, only to face hit-and-run attacks by the hiding Vietnamese locals. Dao mobilized most of the Vietnamese population in this effort, and, in an interesting twist, wrote a book on military strategy, *Essential Summary of Military Arts*.³⁶ Taking the long view, and abstracted to the same degree 4GW authors achieve in their case studies, it appears the basic strategy used against the French and Americans had been used to great effect several centuries earlier. What changed were some of the means employed; technology enabled the twentieth century Vietnamese insurgency in new ways, particularly with media to target the American public.³⁷

The question, then, is whether or not the technological, tactical, and social changes in the Vietnam War were so different from the past that they constituted a new way of war. The 4GW theorists point to the political targeting of the American public as most indicative of the change. Yet if one considers the greater context of domestic American politics, the tactics appear less remarkable. One of the most important

³⁶ Asprey, *War in the Shadows*, 38–9.

³⁷ Some of the tactics were remarkably the same, however, including booby traps with iron-spiked stakes and using the terrain to guerrillas' advantage.

themes in military history is the relationship between the people and their military. During the Vietnam War, this link was eroded with time not simply because insurgents in Vietnam sought to target American will, but due to multiple poor decisions made by US political and military leaders. A plausible argument may be made that national will most hinged on US leaders' credibility, especially following the fiasco of the Pentagon Papers and popular understanding of the degree to which the government had as official policy lied to its people.

From this perspective, one wonders if anything the Vietnamese did to target American will would have succeeded had US leaders acted differently in the years leading up to decisive events such as the 1968 Tet Offensive. After all, late in the war, American counterinsurgency tactics improved to the point that the Vietcong were experiencing extremely heavy losses and US casualty rates were declining. If the civil-military dialogue had been different, it is not too contentious to believe American will may not have been eroded by the 4GW-like tactics employed.³⁸

Of course, counterfactuals are not entirely convincing, so the more important context to understand in regard to Vietnam is the external support from the Soviet Union and China.³⁹ Hammes, for instance, selectively describes the war in Vietnam as a popular insurgency targeting the American domestic will to fight with the US military somewhere in the middle. Left out from Hammes' discussion, and the other 4GW authors' passing references to Vietnam, is the US decision to not engage in a conventional invasion of North Vietnam for fear of Chinese retaliation. Regardless of whether or not such a Chinese reinforcement would have borne out, the possibility was demonstrably influential in US war policy. The Soviet angle is that the North Vietnamese were able to rely on a stream of material support without which the odds of a US victory would have increased immeasurably. Even a writer sympathetic to 4GW, James Wirtz, points to this fatal flaw in the Vietnam case study.⁴⁰

³⁸For further reading on the potential for US military success in Vietnam, see Lewis Sorley, *A Better War* (Orlando, FL: Harcourt 1999); Jeffrey Record, 'Vietnam in Retrospect: Could We Have Won?' *Parameters* 26/4 (Winter 1996/97), 51–65; Mark Moyar, *Triumph Forsaken: The Vietnam War, 1954–1965* (Cambridge: CUP 2006).

³⁹For further reading on Soviet support for North Vietnam, see Douglas Pike, *Vietnam and the Soviet Union: Anatomy of an Alliance* (Boulder, CO: Westview 1987), on Chinese support, Qiang Zhai, *China and the Vietnam Wars, 1950–1975* (Chapel Hill: Univ. of North Carolina Press 2000), and on the nexus of the three, Mari Olsen, *Soviet-Vietnam Relations and the Role of China, 1949–64* (London: Routledge 2006).

⁴⁰James Wirtz, 'Politics With Guns: A Response to T.X. Hammes', *Contemporary Security Policy* 26/2 (Aug. 2005), 224.

Lebanon and Somalia

Hammes claims ‘not only is 4GW the only kind of war America has ever lost, we have done so three times: Vietnam, Lebanon, and Somalia’.⁴¹ Though he does not treat Lebanon and Somalia as separate case studies in *The Sling and the Stone*, he repeatedly cites the two as examples of 4GW. The criticism here is simple: Hammes characterizes the length of 4GW as measured in decades, but neither case comes close to that criteria. The US political leaders at the time did a cost-benefit analysis and decided to pull out rather than fight an attritional conflict at a distant periphery of national security interests. Additionally, the fact that video cameras were handy when Somalis desecrated US soldiers’ bodies hardly constitutes an evolution in warfare; the attack on US soldiers was neither planned to take the war to the American homeland nor exploited for that reason. Perhaps the attack could be viewed through the lens of networked warfare, because when word spread that Americans were conducting a raid in Mogadishu, the heavily armed populace was able to quickly swarm on the American targets. This could be seen as a chance occurrence of a new tactic, or luck, but it was not a *strategy* to target American will.

Iraqi Insurgency

The 4GW authors continually point to the current conflict against the United States-led Coalition in Iraq as an exemplar. In *The Sling and the Stone*, Hammes writes, ‘The ACF [anti-coalition forces] represent a genuine fourth-generation enemy – a loosely affiliated network joined in a temporary alliance to achieve a specific, short-term goal.’⁴² But on the very same page, Hammes writes:

[E]ach fights for his own goals. The goals of each group may be at odds with the others, but that does not keep the various elements from cooperating when it comes to fighting the United States... because the nature of the various elements of the ACF means they can have no unified goal other than the negative one of driving the United States out, the ACF cannot have a coherent plan for the political future of Iraq.

There are a few problems with classifying Iraq as a fourth generation war.

⁴¹Hammes, *The Sling and the Stone*, 3, and also Hammes, ‘War Evolves Into the Fourth Generation’, 189–90.

⁴²Hammes, *The Sling and the Stone*, 179.

First, with no unified political objective, what are the ACF doing? Violence that is not political is criminal or animal, not warfare.

Second, if one wishes to challenge the first claim by arguing that the objective to drive out the United States is political, then the next logical criticism is that ACF are targeting Iraqi civilians and government officials. The assassinations of members of the interim Iraqi government and other attempts to derail the political process are not aimed at driving out the US military, but to continue to destabilize the country. This may be in pursuit of a broader objective to delegitimize the United States globally, but that would run counter to Hammes' claim that there is no other unified ACF goal. The objective of groups pursuing these types of attacks is, presumably, to achieve control of the Iraqi state or to create a new state within the former borders of Iraq. Like the example of China, this analysis suggests 4GW advocates are wrong to focus on the erosion of the state, as their own case studies demonstrate groups vying for control of a state.

Third, Hammes calls the goal of driving out the United States 'short-term'; why then does he characterize 4GW as measured in decades?

Finally, if one accepts Hammes' analysis and believes the unified ACF goal is to drive out the United States, how is this different from counter-occupation conflicts going back thousands of years? If the difference is technology and increased access to the American public, there is little reason to believe we are in a new generation of war. Rather, ours is an age of more empowered insurgencies that have the potential to 'spoil' stability in particular countries or regions without affecting the broader international system.

Conventional Wars

A common claim of the 4GW authors is that conventional war is on its way out and the US has fought and lost to 4GW opponents since Vietnam. Though the discussion of conventional war in 4GW literature does not involve detailed case studies, some theorists use examples of high-intensity conflicts supplemented with questionable analysis that are worthy of mention here. For example, Hammes claims:

Since World War II, wars have been a mixed bag of conventional and unconventional conflicts. Conventional wars – the Korean War, the Israeli–Arab wars of 1956, 1967, and 1973, the Falklands War, the Iran–Iraq War, and the First Gulf War – generally have ended with a return to the strategic status quo. While some territory changed hands and, in some cases, regimes changed, each state came out of the war with largely the same

political, economic, and social structure with which it entered. In short, the strategic situation of the participants did not change significantly.⁴³

At least three points need to be made in response to this.

First, the Arab-Israeli wars, especially that of 1967, demonstrated the inability of the Arab world to destroy the Israeli state with conventional means. This was a fundamental strategic victory for the Israelis. Though low-intensity conflict is waged over Palestinian lands to this day, no reasonable person believes that a new Arab coalition is looming for the invasion of Israel.

Second, to say that ‘while some territory has changed hands... the strategic situation... did not change significantly’ is a tough comment to accept regarding an area of land as small as Israel. Indeed, Israel’s seizure of the Golan Heights and Gaza was specifically to change the strategic disposition in Israel’s favor – the Israel Defense Forces sought to prevent the shelling of northern Israel and put to rest fears of a surprise ground attack from Egypt.⁴⁴ The same logic shows the relevance of the 1973 war, an Arab attempt to reverse Israel’s 1967 land gains.

Third, the First Gulf War demonstrated to the rest of the world the shocking military superiority of the United States. Iraq’s military had been viewed as modern, and casualty estimates going into the conflict were orders of magnitude greater than what the United States eventually suffered. States’ increased consideration of asymmetric tactics is probably in response to US performance in both rounds of conflict in Iraq, and this is a change in the ‘strategic situation’ of potential US adversaries.

Fourth, anyone remotely familiar with the current security policy of North Korea will feel visceral opposition to the claim that the United States’ stalemate in the Korean War posed no change in the strategic situation of East Asia.

Conventional war, therefore, has not only persisted throughout the rise of the ‘fourth generation’, but has been of great consequence to those involved. To argue that not only is 4GW what the future of warfare is likely to be about, but has dominated warfare for the past half-century, is thus a far stretch from reality.

⁴³Thomas X. Hammes, ‘Insurgency: Modern Warfare Evolves Into a Fourth Generation’, *Strategic Forum* 214 (2005), and in *The Sling and the Stone*, 4.

⁴⁴For further reading on the conflict, see Michael Oren, *Six Days of War* (Oxford: OUP 2002).

Disproving Case Studies

The 4GW authors discount historical cases that show the longevity and persistence of the fundamental tenets of 4GW theory. There is nothing unique about trying to get an enemy to back down without the primary objective of destroying military forces; anti-colonialists, particularly, used force in pursuit of a right to be left alone. An analysis of the commonalities between historical insurgencies and 4GW theory lends credence to the common claim that 4GW is nothing more than ‘insurgency on steroids’.⁴⁵ This same analysis indicates that Lind is misleading when he claims 4GW is a ‘return’ to warfare prior to the existence of states; the type of warfare he describes has occurred throughout the history of the state, and at no time have states maintained a complete monopoly on violence.

The right to be left alone, self-determination, is not a novel concept. It suggests that peoples want the power to run their lives free of outside interference, and it is the subject of much political philosophy written during the past several thousand years. The concept is relevant in the discussion of 4GW because actors seeking the right to be left alone have targeted a stronger power’s will to continue oppression since at least the time of the Romans. Counter-occupation strategies sound quite a bit like 4GW. They seek to increase the ‘cost’ side of the adversary’s cost-benefit analysis, use sustained violence to this end, hide the combatants within the population, provoke government responses that stoke popular ire, attack stealthily and in a hit-and-run fashion, leverage the local population’s discontent and anger against the foreign

⁴⁵For example, ‘these techniques or strategies are not new, but something else is – the reduction in the entry cost of political organization needed for insurgency’, Ferris, ‘Generations at War?’, 252; ‘I argue that the activities covered by 4GW are best viewed not as an evolution from earlier, more conventional types of warfare but instead as aspects of a separate process, reflecting strategies that the weak have long adopted in conflicts with superior military powers’, ‘the idea that there is something strikingly novel about groups that come together “as networks to achieve short term common goals and then go their own way” is bizarre. It is a common theme of political life,’ and ‘this is the approach of guerrillas, resisters, partisans, insurgents, subversives, insurrectionists, revolutionaries, secessionists and terrorists, and it has a long history. They are not a progression from forms of “proper war”, but instead constitute a parallel development’, Lawrence Freedman, ‘War Evolves into the Fourth Generation: A Comment on T.X. Hammes’, *Contemporary Security Policy* 26/2 (Aug. 2005), 254, 259, and 260, respectively; ‘When you look closely, 4GW is just another term to describe what many a soldier has been dealing with for many a year – insurgencies’, Rod Thornton, ‘Fourth Generation: A “New” Form of “Warfare”?’ *Contemporary Security Policy* 26/2 (Aug. 2005), 272.

power, and accept a base inferiority in military technology, numbers, and quality.

Rome

Several guerrilla wars were fought against the Roman Empire. One of the most successful was the Jewish insurgency against Rome between AD 132 and 135, which began with the Emperor Hadrian's broken promise to local Jews. Upon ascending to the throne, Hadrian had promised to restore the fortune of the Jews, allow temple worship, and consider recognizing the Jewish people as a client state. After he changed his mind, a large part of the Jewish population revolted. The Jews used ambushes, did not fight the Romans face-to-face, chose the time and place of battle, used hit-and-run tactics, and built a network of tunnels, caves, and safe havens. The insurgents succeeded in driving out nearly an entire Roman legion and then established local rule. The Jews minted their own currency, collected taxes, and established worship services. They lived their lives the way they wanted. That is, until the Romans came back with greater force and won an attritional battle in which villages, food supplies, and women and children were wiped out.⁴⁶

American Revolution

A number of 4GW-like tactics were used against the British during the American Revolution, including partisan warfare fought in the South, local militias as observed at Lexington and Concord, and harassment within the American population, such as with feather-and-tarring. In the South, guerrilla forces were used to supplement conventional forces. American guerrillas used the terrain to their advantage in surprise ambushes and attacks on British supply lines, reinforcements, and communications.

An important note is the proposed strategy of American Major General Charles Lee, which was not implemented, but the logic of which represents the antiquity of 4GW concepts. Lee was obsessed with the role of the population; he found critical the political and psychological elements of warfare. In his official duties, Lee forced Tories to swear loyalty oaths and would relocate or disarm troublesome populations. In 1778, Lee proposed that his only senior, the Commander-in-Chief and then Major General George Washington, forego conventional warfare in favor of a harassment campaign, a

⁴⁶For further reading on guerrilla warfare against the Roman Empire, see Asprey, *War in the Shadows*.

people's war of mass resistance. Lee believed that Washington was fighting the British on their terms, and that a guerrilla campaign would be better suited to the Americans. He eventually fell out of favor with Washington and the American political leadership – an ironic twist given his emphasis on feeling the pulse of the people – and was stripped of his rank.⁴⁷ Nevertheless, the facts remain that American independence was achieved with some '4GW' tactics and that Charles Lee did not need to read Mao's *On Guerrilla Warfare* to articulate a broader vision of irregular warfare against the British.

The Peninsular War

The Franco-Spanish Peninsular War is one of the most cited insurgencies to disprove the uniqueness of 4GW, and it is included here in support of the 'right to be left alone' principle and temporal inconsistency argument. When Napoleon conquered Spain, he put his brother Joseph in charge and implemented a large number of 'liberal' reforms in vogue with the secular French Revolution. Some of these changes included confiscation of church property, using churches as stables, conscription of Spaniards to fight other Spaniards, taxation, and brutal oppression. The Spanish reacted with the creation of *juntas*, local councils that raised and coordinated militias. The Spaniards knew that they could not match the quality of Napoleon's armies, so they used hit-and-run attacks to eventually tie down as many as 200,000 (out of 350,000) French soldiers on the Spanish peninsula. The guerrillas were not successful enough to win the war independently, but they kept the French divided, attacked their supplies, collected intelligence, and eventually created the conditions under which conventional British, Spanish and Portuguese forces could defeat Napoleon's forces.

⁴⁷For further reading on irregular warfare in the American war of independence, see John Shy, *A People Numerous and Armed* (Ann Arbor: Univ. of Michigan Press 1990), particularly Ch. 6, 'American Strategy: Charles Lee and the Radical Alternative', 133–62. Shy relies on Lee's personal correspondence and writing in reconstructing his plans for an American guerrilla war. Also Robert Gross, *The Minutemen and Their World* (New York: Hill & Wang 1976), and an unlikely candidate, former CIA Director William Casey's history of the American Revolution, *Where and How the War Was Fought: An Armchair Tour of the American Revolution* (New York: William & Morrow 1976). Casey's very first sentences read, 'The American Revolution was both political and military. The Americans fought irregular, partisan, guerrilla warfare.' A later statement highlights the relevance of the American Revolution to the present discussion, 'Washington had put together the fundamental ideas of modern revolutionary warfare. He won the war without winning a major battle, as Greene liberated the Carolinas while losing every battle he fought', 22.

Though 4GW authors claim Napoleon's levee en masse was the 'first generation of modern war', clearly concepts allegedly from the 'fourth generation' were already in practice to great effect in the early history of the Westphalian state system. Of special importance was the broad base of the guerrilla war, which involved most Spaniards in either attacks or support operations, and that the guerrillas were untrained and fighting a highly disciplined and motivated adversary willing to engage in brutality.⁴⁸

Philippines

The United States fought multiple counterinsurgencies in the Philippines, and the insurgents used a mix of classic and modern guerrilla warfare tactics. In the 1899–1902 Philippine Insurrection, insurgents used a complex signaling system within friendly local populations to defend against American patrols, including church bells, drums, couriers, and conch shells. Other tactics included disinformation campaigns, which the insurgents used to trick American soldiers into conducting false arrests. This Philippine insurgency is of special interest to this paper's discussion because of Emilio Aguinaldo's tactics. Aguinaldo was a nationalist leader who named himself dictator and declared Philippine independence from the United States. In November 1899, he expressly declared that guerrilla warfare would be *the* strategy for defeating the United States. Aguinaldo's declaration came with the specific intention to influence the US presidential election in November 1900. He hoped to unseat President William McKinley in favor of anti-imperialist William Jennings Bryan.

Aguinaldo's plan was to 'avoid enemy strength and attack its weakness, prolong warfare rather than seek a rapid decision, preserve troops and weapons, and fight only with overwhelming superiority . . . a war of attrition, of wearing down an opponent over a long period through exhaustion, disease, and steady bloodletting'.⁴⁹ The revolutionaries increased their operational tempo in fall 1900 specifically in pursuit of their plan to change the US administration.⁵⁰ McKinley was

⁴⁸For further reading on the Peninsular War, see Charles Esdaile, *The Peninsular War* (New York: Palgrave Macmillan 2003); Ian Fletcher (ed.), *The Peninsular War: Aspects of the Struggle for the Iberian Peninsula* (Staplehurst, UK: Spellmount 1998); and David Gates, *The Spanish Ulcer: A History of the Peninsular War* (New York: Norton 1986).

⁴⁹Brian McAllister Linn, *The Philippine War* (Lawrence: UP of Kansas 2000), 187.

⁵⁰Linn, *The Philippine War*, 255. See also Asprey, *War in the Shadows*, 'Aguinaldo, seeing a Democratic victory as his only hope, called for general escalation of resistance in order to keep the issue in American headlines', 130.

reelected, however, and the counterinsurgency went on until the Filipinos lost to superior US military tactics and the local population's ambivalence. The 1899–1902 Philippine insurgency, therefore, exhibited an unsuccessful use of many '4GW' tactics – including targeting US national will rather than seeking to defeat the US military. Aguinaldo thereby explicitly used guerrilla warfare, social networks, and influence operations against a foreign government as his primary tactics –decades before Mao wrote his strategy.

If Not 4GW, Then What?

Beyond implying that 4GW is not a good tool for analyzing the future of warfare, the above criticisms suggest that warfighters, academics, and Beltway bureaucrats ought to think about war in other ways. The first is to view insurgency within the broader context of warfare. One of the key problems with 4GW is that its authors assume away conventional warfare and suggest that resources ought to be diverted to counterinsurgency (COIN) capabilities to fight 4GW. While the United States almost certainly will remain engaged in low-intensity conflicts (LICs), there is little reason to think that many of these will be the sort 4GW authors write about – it is hard to believe that the United States will attempt to control much foreign territory in the near future given its experience in Iraq. The overwhelming majority of the time LIC probably will involve US forces containing the spillover consequences of internal conflict, providing humanitarian aid or natural disaster relief, and continuing counterterrorism and peacekeeping operations – not decades-long, prolonged counterinsurgencies.⁵¹

Even if this analysis is false, and the United States does need to try to control territory in the future, it is tough to see how this would be the dominant global way of war. As argued earlier, counter-occupation warfare can achieve only limited political objectives, and only appears to work against one type of adversary: a Western society that is susceptible to changing its mind about the value of a conflict. It is a rather large and ill-substantiated analytic leap to claim most wars will be between Western democracies and insurgencies.

Additionally, it is irresponsible, and probably wrong, to discount the potential for state-on-state conflict. Not only does potential state-on-state conflict suggest that 4GW is not the current 'generation' of warfare, it also suggests that boxing thinking into super-insurgency battles will leave US forces unprepared for conflicts that would be far

⁵¹Steven David presents a compelling argument that a major security concern to the United States is spillover consequences from civil war and other internal conflicts in his article 'On Civil War', published in *The American Interest* 2/4 (Mar./Apr. 2007).

more consequential. Examples abound, and though it helps to be creative in thinking about scenarios for future war, creativity is not even necessary. Consider the possibilities for a war with China in the Taiwan Strait or military action against the nuclear weapon programs of Iran or North Korea. Other, less likely, possibilities include renewed conflict between India and Pakistan, escalation in the Balkans or on NATO's Central Asia periphery, or war to preserve (or enhance) access to increasingly rare natural resources.

Additionally, since the end of the Cold War, international relations theorists have written extensively about the potential for balancing against the United States, such as by China, India, or a resurgent Russia awash in oil revenue.⁵² Renewed great power competition may not lead to war, but concomitant with new concentrations of offensive military power is a new potential for use of that power. Considering how poorly interstate wars have been predicted in the past, how much of the world's military power is in the hands of states, and the fact that war may still achieve political objectives, it seems rather presumptuous to say the United States' six years free of conventional war will last into the foreseeable future.⁵³

If state-on-state conflict ought not be ignored, then, one must also consider how states are likely to fight one another. High-intensity conventional war remains a strong possibility, of course, as does the use of WMD. The 4GW authors, as mentioned earlier in the paper, do not make much of the existence and proliferation of WMD among states. One state's large-scale use of WMD against an enemy's civilian population – be it nuclear, chemical, or biological – would relegate 4GW to the backburner overnight. While the prospects appear a bit more optimistic for North Korea to abandon its nuclear program, should Iran succeed in developing nuclear weapons, the regional implications and second-order effects would be enormous. Arab neighbors may decide to seek their own deterrents to counter a Persian atom bomb, and with the region's history, a failure of deterrence is not at all difficult to contemplate.

Implicit throughout this analysis is that states maintain a monopoly on nuclear weapons, the most destructive armaments in the world and

⁵²For instance, see the 'Balancing Acts' issue of *International Security* 30/1 (Summer 2005), and Christopher Layne, 'The Unipolar Illusion Revisited: The Coming End of the United States' Unipolar Moment', *International Security* 31/2 (Fall 2006), 7–41.

⁵³This statement, of course, generously discounts US peacekeeping and deterrence operations. If these are included in the definition of 'conventional' military activity – a fair claim to make given their persistence throughout the past half-century – then conventional warfare is a daily phenomenon.

the only ones capable of posing an existential threat to the human race. With the broader view of international security in mind, one cannot take seriously 4GW authors' claims, such as Lind's 2004 proposition that the Revolutionary Armed Forces of Colombia (FARC) – an organization that kidnaps rich businessmen for operating funds – represents the dominant face of future warfare.

The second area of future warfare to consider is in the realm of technology. To highlight the importance of technology in transforming warfare is to evoke a visceral response from 4GW advocates. Sometimes these responses are rather cogent, such as in legitimate criticisms of the DoD's inchoate network-centric warfare (NCW) concepts, but mostly they detract from valuable discourse and are, indeed, contradictory. For the second and third 'generations' of warfare as argued by Lind and Hammes occurred thanks to new technological developments during the Industrial Revolution and then the marriage of systems. So, in an era of massive technological change, it is easy to think of how warfare may dramatically change in ways 4GW authors have entirely neglected: for instance, with falling barriers to entry in space, rapid advancements in biotechnology, or advancements in existing technologies, such as power supplies.

The 4GW future warfare analysis also fails in its advocates' criticism of NCW, alluded to earlier in the paper. Though 4GW authors are right to say the Defense Department's vision is rather unclear at present, it is too soon to dismiss outright the potential for information technology (IT) to alter military doctrine, culture, and organization. After all, 4GW advocates claim that their 'generations' of warfare stem from broader changes in society, and if one were to characterize how technology is presently changing society, it is through the distribution of IT. IT has changed social behavior in profound ways via cellular phones and the Internet, in particular, and it is reasonable to think the military's response would be to harness the same technology to make warfighting more efficient. The NCW phenomenon is not forced upon the United States by defense planners in bed with the private sector; it is the natural result of dropping prices, miniaturization of IT, and rising computer familiarity among the armed forces, such as with email, blogs, gaming, and web browsing.

NCW also stems from cultural factors: militaries transforming to NCW come from societies that are especially sensitive to casualties. High-tech, high-income societies tend to resemble each other more than low-tech, low-income societies do, and it is not a coincidence that IT-driven transformation is similar among the United States, Western Europe, several other NATO countries, Australia, Israel, and Singapore. These states are latching on to military networking concepts even though none has a high degree of certainty regarding the ultimate

implications of those changes on warfare. Furthermore, IT-driven change is taking place in US military services, not just in white papers produced in Washington, suggesting that soldiers at the operational and tactical levels are trying to use IT to solve problems.⁵⁴ That is one of the key ways a military culture changes and a transformation occurs.⁵⁵

One may already observe militaries fighting differently as a result of IT. For instance, unmanned aerial vehicles (UAVs) in Central Asia are currently piloted by operators in the continental United States (CONUS).⁵⁶ It is not a far leap to imagine those UAVs flown by defense contractors sitting in office buildings in CONUS, firing missiles at the command of a soldier thousands of miles away, and relaying high-fidelity images for battle damage assessment.

Another example focuses on command structures rather than tactics: in the Kosovo air war, the existence of precision munitions changed the United States' targeting procedures to include review by lawyers.⁵⁷ This

⁵⁴Defense journals have done an especially good job of tracking services' NCW-related information technology acquisitions and contracts. Some examples include: David A. Fulghum, 'Talking Radars', *Aviation Week & Space Technology* 163/23 (2005), 24–5; David A. Fulghum, 'Wireless War', *Aviation Week & Space Technology* 163/16 (2005), 48–50; Uhler, 'Technology: Force Multiplier for Special Operations', 54–9; Ted McKenna, 'US Army Hopes to Weed Out Redundant C2 Systems', *Journal of Electronic Defense* 28/12 (Dec. 2005), 23–5; Brendan Rivers, 'New Sensors for FCS Ground Vehicles', *Journal of Electronic Defense* 28/8 (Aug. 2005), 19–20; John Keller, 'Transformational Communications', *Military and Aerospace Electronics* 16/5 (May 2005), 26–33; Adam Baddeley, 'Data Links: Into the Light?' *Military Technology* 29/5 (2005), 63–70; P.W. Phister Jr and I.G. Plonisch, 'Military Applications of Information Technologies: The US Air Force's Approach', *Military Technology* 29/5 (May 2005), 58–62; Gerard Titi, 'The Next Steps in Advanced ISR Radars', *Military Technology* 29/8 (Aug. 2005), 58–60; Christopher J. Toomey, 'Army Digitization: Making it Ready for Prime Time', *Parameters* 33/4 (Winter 2003/04), 40–53.

⁵⁵See, for example, Stephen Peter Rosen's *Winning the Next War: Innovation and the Modern Military* (Ithaca, NY: Cornell UP 1994), in which Rosen argues that military innovation occurs when mid- or low-level officers become convinced of the utility of a new system from experience. These officers then protect the innovation as they are promoted and are in a position to promote and appoint subordinates who also believe in the value of the new system.

⁵⁶The command and control of Predator aircraft is widely reported in the press. For example, listen to Mary Louise Kelley's radio broadcast of a visit to the center from which the UAVs are flown. 'The Nevada Home of the Predator Drone Craft', National Public Radio, 16 Sept. 2005. See also Robert Kaplan's article based on a visit to the same center, 'Hunting the Taliban in Las Vegas', *Atlantic Monthly* 298/2 (Sept. 2006), 81–4.

⁵⁷Richard K. Betts, 'Compromised Command: Inside NATO's First War', *Foreign Affairs* 80/4 (Jul./Aug. 2001), 126–32.

example shows how new technology, combined with a social change to casualty sensitivity and interest in adhering to international law, has changed warfighting.

Future change is well within sight as more and better IT allows for centralized decision-making. It is unclear whether or not a 'networked' force will push information downward to empower local decisions or will bring the data back home for senior officers or civilian leaders to make tactical decisions. Either way, there is no implicit type of warfare in these changes; the technological change could benefit the full range of operations the US military may have to undertake, including counterinsurgency.

The purpose of these arguments is not to comment with near-certainty on the character of future warfare, but to criticize 4GW authors for doing so. Warfare is already changing in a manner dismissed by 4GW advocates, and there is no reason to believe that the change will be irrelevant because future conflicts will be of the 'fourth generation'. While the US military clearly has immediate counterinsurgency missions in Iraq and Afghanistan, and is likely to engage in low-intensity conflict during the coming decades, defense planners must be careful to not swing the pendulum too far away from preparation for conventional warfare. As argued early in this paper, at the level of the international system, US conventional force preeminence probably is a major cause of the relative infrequency of interstate war. To reorient the military away from conventional warfare in favor of counterinsurgency would invite peer competition, suggest a lesser US commitment to intervene when necessary to prevent other states from going to war, and leave the United States ill-prepared to fight the most consequential form of warfare.

A compromise position must be attained in which the military improves its ability to wage low-intensity conflict while maintaining its present dominance in conventional warfare; 4GW-like insurgency is not the only potential threat to the United States, and 4GW advocates have not even demonstrated that it is the most common type of contemporary warfare. It is time to drop the 4GW lexicon and incorporate its theorists' ideas into a much broader dialogue about how to transform the US military to best maintain the United States' position in the world.

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